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## ABSTRACT

A novel laser apparatus is disclosed which pertains to laser resonator geometries possessing circular symmetry, such as in the case of disk or spherical lasers. The
10 disclosed invention utilizes multi-layer dielectric (MLD) thin film reflectors of many layer pairs of very small refractive index difference, the MLD deposited on a surface of revolution, thereby forming an optical cavity. These dielectric reflectors are disposed in such a way as to allow selection of preferred low order modes and suppression of parasitic modes while allowing a high cavity Q factor for preferred modes. The invention
15 disclosed, in its preferred embodiments, is seen as particularly useful in applications requiring high efficiency in the production and coupling of coherent radiation. This is accomplished in a cavity design that is relatively compact and economical.